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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,501	07/30/2003	Robert L. Turner	54599US032	7907

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EXAMINER
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ALEJANDRO, RAYMOND

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/630,501

Applicant(s)

TURNER ET AL.

Examiner

Raymond Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 15-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 15-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07/30/03 & 03/11/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 03/10/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

1. This application is a continuation of Application No. 09/751169, filed 12/29/00.
2. Acknowledgment is made of applicant's claim for domestic priority under 35 U.S.C. 119(e).

### ***Information Disclosure Statement***

3. The information disclosure statement (IDS) submitted on 03/10/04 was considered by the examiner.

### ***Drawings***

4. The drawings were received on 07/30/03 and 03/11/04. These drawings are acceptable.

### ***Specification***

5. The preliminary amendment filed 07/30/03 does not introduce new matter into the disclosure of the invention.
6. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
7. The disclosure is objected to because of the following informalities: the current status of the parent application (whether abandoned or patented and its patent #) should be updated. Appropriate correction is required.

### *Claim Objections*

8. Claim 4 is objected to because of the following informalities: "atimony" should read "antimony". Appropriate correction is required.

### *Double Patenting*

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1 and 3-10 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 of U.S. Patent No. 6699336. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

The US Patent'336 claims the following (CLAIMS 1-4):

- 35 1. An electrode composition comprising:  
an electrode material consisting essentially of aluminum,  
silicon, and manganese in the form of an amorphous  
mixture at ambient temperature that remains amor-  
phous when said electrode composition is incorporated  
40 into a lithium battery and cycled through at least one  
full charge-discharge cycle at ambient temperature.

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2. An electrode composition comprising:  
an electrode material consisting essentially of germanium,  
nickel, silicon, and aluminum in the form of an amor-  
phous mixture at ambient temperature that remains  
amorphous when said electrode composition is incor-  
porated into a lithium battery and cycled through at  
least one full charge-discharge cycle at ambient tem-  
perature.
3. An electrode composition according to claim 1,  
wherein said comprising:  
an electrode material consisting essentially of aluminum,  
silicon, and copper in the form of an amorphous  
mixture at ambient temperature that remains amor-  
phous when said electrode composition is incorporated  
into a lithium battery and cycled through at least one  
full charge-discharge cycle at ambient temperature.
4. An electrode composition comprising:  
an electrode material consisting essentially of silicon, tin,  
and copper in the form of an amorphous mixture at  
ambient temperature that remains amorphous when  
said electrode composition is incorporated into a  
lithium battery and cycled through at least one full  
charge-discharge cycle at ambient temperature.

*In this case, claims 1-4 of the US Patent '336 fully encompasses or anticipates the  
claimed subject matter of the present application.*

### ***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the  
basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on  
sale in this country, more than one year prior to the date of application for patent in the United States.

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this  
or a foreign country, before the invention thereof by the applicant for a patent.

12. Claims 1-10 and 15-17 are rejected under 35 U.S.C. 102(b) as being anticipated by

Japanese Publication 08-50922 (herein called the JP'922 or Kawakami et al). (*For purposes of*

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*rejection, US 6051340 to Kawakami et al, which belongs to the same patent family, is being cited hereinbelow as it was published in English language).*

As to claim 1:

Kawakami et al disclose an anode for a rechargeable lithium battery comprising an electrode component comprising a first metal incapable of being alloyed with Li which is generated upon operating charging; and a layer comprising said first metal and a second metal capable of being alloyed with Li (CLAIM 14). Kawakami et al disclose the charging operation of the rechargeable lithium battery (ABSTRACT).

Kawakami et al teach that the first metal is selected from the group consisting of at least Ni, Fe, Cu, Mo, W, among others (CLAIM 14). Said second metal is selected from the group consisting of at least Al, Mg, Si, Ge, Sb, Pb, In and Zn, among others (CLAIM 14/ COL 13, lines 35-45). In addition to that, Kawakami et al uses a layer comprising one or more materials selected from the group consisting of Sn-Bi alloy; Sn-Pb alloy, Zn-Al alloy, Cu-Zn alloy, Cd-Zn alloy (CLAIM 23/ COL 13, lines 35-45). *Thus, Kawakami et al readily envision combinations of these metals, that is, either single combination or a collective combination.*

**Examiner's note:** *accordingly, products of identical chemical composition can not have mutually exclusive properties, and thus, the claimed characteristic (i.e. remaining an amorphous mixture), is necessarily present in the prior art material.*

As to claims 2-5:

As seen above, Kawakami et al uses first metals selected from the group consisting of at least Ni, Fe, Cu, Mo, W, among others (CLAIM 14); and second metals selected from the group consisting of at least Al, Mg, Si, Ge, Sb, Pb, In and Zn, among others (CLAIM 14).

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As to claim 6-10:

Kawakami et al directly use Al and/or Si (CLAIM 14); and/or Sn (CLAIM 23).

As to claims 15-16:

Kawakami et al describe the formation of a layer and/or a powdery material (CLAIM 14/ COL 12, lines 22-27/ FIGURES 4a-c).

As to claim 17:

Disclosed is the lithium rechargeable battery comprising a pair of electrodes including the specifically claimed electrode and the electrolyte separating the electrodes (ABSTRACT/ CLAIM 1/ COL 17, lines 52-65/ COL 18, lines 13-18).

Thus, the present claims are anticipated.

13. Claims 1, 3-7, 9 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by the Japanese Publication 06-325764 (hereinafter referred to as the JP'764).

As to claims 1 and 17:

The JP'764 discloses a non-aqueous electrolyte secondary cell comprising a positive electrode and a negative electrode separated by electrolyte serving as separator 3. Further disclosed is that the negative electrode is constituted as a metallic alloy of Al, Si and Fe, thereby making available Li for participation in the reaction through occlusion/discharge (ABSTRACT).

***Examiner's note:*** accordingly, products of identical chemical composition can not have mutually exclusive properties, and thus, the claimed characteristic (i.e. remaining an amorphous mixture), is necessarily present in the prior art material.

As to claims 3-5:

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The JP'764 employs a metallic alloy of Al, Si and Fe as the negative electrode (ABSTRACT).

As to claims 6-7 and 9:

Specifically, the JP'764 employs a metallic alloy of Al, Si as part of the negative electrode (ABSTRACT).

As a result, the present claims are anticipated.

14. Claims 1, 4-5, 7 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by the Japanese Publication 10-294112 (hereinafter referred to as the JP'112).

As to claims 1 and 17:

The JP'112 reveals a lithium secondary battery including a separator disposed between an anode pole and a cathode (ABSTRACT) wherein the anode pole contains a lithium oxide; and the cathode active material composition expressed by the formula  $M_{100-x}Si_x$  where M is an element chosen from Ni, Fe, Co and Mn (ABSTRACT). The JP'112 is concerned with charging and discharging of the battery (ABSTRACT).

**Examiner's note:** *accordingly, products of identical chemical composition can not have mutually exclusive properties, and thus, the claimed characteristic (i.e. remaining an amorphous mixture), is necessarily present in the prior art material.*

As to claims 4-5:

The JP'112 employs a metallic alloy of Al, Si and Fe as the negative electrode (ABSTRACT).

As to claim 7:



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Specifically, the JP'112 employs Si as part of the cathode (ABSTRACT).

*Examiner's note: accordingly, products of identical chemical composition can not have mutually exclusive properties, and thus, the claimed characteristic (i.e. remaining an amorphous mixture), is necessarily present in the prior art material.*

Consequently, the present claims are anticipated.

15. Claims 1-10 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by the Japanese Publication 10-223221 (hereinafter referred to as the JP'221).

As to claims 1 and 17:

The JP'221 discloses a secondary battery having a cathode and an anode whose active material; occludes and releases Li-ion (ABSTRACT). *Thus, the JP'221 is related to a Li-ion battery.* Further disclosed is that the cathode active material comprises an inter-metallic compound with one or more kinds of element chosen from Al, Ge, Pb, Si, Zn, Sn and other metals (ABSTRACT). Other metals include Fe, Ni, Cu (TABLE on Page 6) and Mn, Mo as well (P. 0010-0012). The combination also includes the use of single or plural combinations of these metals (P. 0010-0012). The JP'221 describes the impact of using these materials with respect to the discharge/charge characteristics of the battery (ABSTRACT).

*Examiner's note: accordingly, products of identical chemical composition can not have mutually exclusive properties, and thus, the claimed characteristic (i.e. remaining an amorphous mixture), is necessarily present in the prior art material.*

As to claims 2-5:

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The JP'221 discloses that it is known to use element chosen from Al, Ge, Pb, Si, Zn, Sn and other metals (ABSTRACT). Other metals include Fe, Ni, Cu (TABLE on Page 6) and Mn, Mo as well (P. 0010-0012). The combination also includes the use of single or plural combinations of these metals (P. 0010-0012).

As to claims 6-10:

Specifically, the JP'221 employs a metallic alloy of Al, Si and/or Sn as part of the electrode material (ABSTRACT).

Accordingly, the present claims are anticipated.

16. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by the European Publication 0209402 (hereinafter referred to as the EP'402).

As to claims 1:

The EP'402 discloses an Al-anode alloy (TITLE) consisting essentially of specific weight percents of In, Mn and Mg and the balance being Al (ABSTRACT). The alloy may also contain Fe (TABLES 1 and 3/ABSTRACT). It is particularly useful as a battery anode (ABSTRACT). The EP'402 also uses Si and tin (COL 2, lines 35-48/ TABLE 1); and Zn (TAGLE 1) and Mn (TABLE 3).

**Examiner's note:** *accordingly, products of identical chemical composition can not have mutually exclusive properties, and thus, the claimed characteristic (i.e. remaining an amorphous mixture), is necessarily present in the prior art material.*

As to claims 2-5:

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The anode alloy contains Al, In, Mn and Mg and the balance being Al (ABSTRACT); and also contain Fe (ABSTRACT). The EP'402 also uses Si and tin (COL 2, lines 35-48/ TABLE 1 and 3); and Zn (TAGLE 1) and Mn (TABLE 3).

As to claims 6-10:

Specifically, EP'402 employs Al, Si and tin as part of the electrode material (ABSTRACT/ COL 2, lines 35-48/TABLE 1 and 3).

Hence, the present claims are anticipated.

17. Claims 1-6, 8 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by the European Publication 0750359 (hereinafter referred to as the EP'359).

As to claims 1 and 17:

The EP'359 discloses a secondary battery comprising a pair of electrodes and a separator disposed between the pair of electrodes (TITLE/ABSTRACT/ FIGURE 3) wherein the negative electrode contains particles composed of material contributing a charge-discharge reaction, and the particles comprises at least two phases (ABSTRACT). The Li-battery is also taught (Page 2, lines 21-24).

As for the negative electrode material, an alloy composed of components Ni combined with at least one of element selected from the group consisting of Mg (Page 6, lines 29-31) and/or an alloy composed of components of the above alloy combined with at least one of element selected from the group consisting of Al, Mn, tin, Mo, W, Pb, Fe (Page 6, lines 32-35). The electrode material can include an alloy comprising Ni-Mn-Al or Ni-Mn-Al-W or Ni-Mn-Al-Mo (Page 6, lines 37-43).

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**Examiner's note:** accordingly, products of identical chemical composition can not have mutually exclusive properties, and thus, the claimed characteristic (i.e. remaining an amorphous mixture), is necessarily present in the prior art material.

**As to claims 2-5:**

As for the negative electrode material, an alloy composed of components Ni combined with at least one of element selected from the group consisting of Mg (Page 6, lines 29-31) and/or an alloy composed of components of the above alloy combined with at least one of element selected from the group consisting of Al, Mn, tin, Mo, W, Pb, Fe (Page 6, lines 32-35). The electrode material can include an alloy comprising Ni-Mn-Al or Ni-Mn-Al-W or Ni-Mn-Al-Mo (Page 6, lines 37-43).

**As to claims 6 and 8:**

Specifically, EP'359 employs Al and tin as part of the electrode material (Page 6, lines 32-43).

For this reason, the present claims are anticipated.

18. Claims 1-2, 4-5, 8 and 15-17 are rejected under 35 U.S.C. 102(a) as being anticipated by the WO publication WO 99/49532 (hereinafter referred to as the WO'532).

**As to claims 1 and 17:**

The WO'532 discloses a tin alloy electrode composition for Li-batteries (TITLE) wherein the electrode composition includes: a) an electrochemically active metal element which, prior to cycling, is in the form of an intermetallic compound or an elemental metal and (b) a non-electrochemically active metal element (ABSTRACT). The electrode compositions have high

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initial capacities that are retained even after repeated cycling (ABSTRACT). The cathode, the anode and the electrolyte are taught (Page 7, lines 5-16).

The electrochemically active element is tin (Page 5, lines 8-10). The non-electrochemically active metal element are Mo, Nb, W, Ta, Fe, Cu, and combination thereof (Page 5, lines 9-13). They may be present in the form of single element metals, intermetallic compounds featuring the metal combined (Page 5, lines 10-18).

*Examiner's note: accordingly, products of identical chemical composition can not have mutually exclusive properties, and thus, the claimed characteristic (i.e. remaining an amorphous mixture), is necessarily present in the prior art material.*

As to claims 2 and 4-5:

The electrochemically active element is tin (Page 5, lines 8-10). The non-electrochemically active metal element are Mo, Nb, W, Ta, Fe, Cu, and combination thereof (Page 5, lines 9-13). They may be present in the form of single element metals, intermetallic compounds featuring the metal combined (Page 5, lines 10-18).

As to claim 8:

Specifically, WO'532 employs tin as part of the electrode material (Page 5, lines 8-10).

As to claims 15-16:

The electrode composition is in the form of layer/film or powder (Page 2, line 30/ Page 3, line 11-13/Page 7, lines 3-5, lines 20-28).

Thus, the present claims are anticipated.

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282. The examiner can normally be reached on Monday-Thursday (8:00 am - 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Raymond Alejandro  
Primary Examiner  
Art Unit 1745



RAYMOND ALEJANDRO  
PRIMARY EXAMINER